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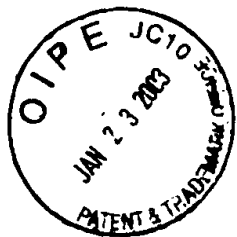
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FIGURE 1

*Ammonifex degensii* KC4 Phosphatase (3A1A=3A2A)  
Complete Gene Sequence

atg agg ggg agc gga gtg cgg ata ctt ctc acc aac gat gac ggc atc	48
Met Arg Gly Ser Gly Val Arg Ile Leu Leu Thr Asn Asp Asp Gly Ile	
ttt gcc gag ggt ctg ggg gct ctg cgc aag atg ctg gag ccc gtg gct	96
Phe Ala Glu Gly Leu Gly Ala Leu Arg Lys Met Leu Glu Pro Val Ala	
acc ctt tac gtg gtg gct ccg gac cga gag cgt agc gcg gcc agc cat	144
Thr Leu Tyr Val Val Ala Pro Asp Arg Glu Arg Ser Ala Ala Ser His	
gct atc acc gtt cac cgc ccc ctg cgg gtg cgg gag gcg ggt ttt cgc	192
Ala Ile Thr Val His Arg Pro Leu Arg Val Arg Glu Ala Gly Phe Arg	
agc ccc agg ctt aaa ggc tgg gta gtg gac ggt acc ccg gcc gac tgc	240
Ser Pro Arg Leu Lys Gly Trp Val Val Asp Gly Thr Pro Ala Asp Cys	
gtc aag ctg ggc ctg gag gta ctt ttg ccc gaa cgt cca gat ttc ctg	288
Val Lys Leu Gly Leu Glu Val Leu Leu Pro Glu Arg Pro Asp Phe Leu	
gtt tcg ggc ata aac tac ggg ccc aac ctg ggt acc gac gta ctt tac	336
Val Ser Gly Ile Asn Tyr Gly Pro Asn Leu Gly Thr Asp Val Leu Tyr	
tcc ggc acc gtc tcg gcg gcc ata gaa ggg gta att aac ggc att ccc	384
Ser Gly Thr Val Ser Ala Ala Ile Glu Gly Val Ile Asn Gly Ile Pro	
tcg gtg gcc gta tct ttg gcc acg cgg cgg gag ccg gac tat acc tgg	432
Ser Val Ala Val Ser Leu Ala Thr Arg Arg Glu Pro Asp Tyr Thr Trp	
gcg gcc cgg ttc gtc ctg gtc ctg ctg gag gaa ctg cga aaa cac caa	480
Ala Ala Arg Phe Val Leu Val Leu Leu Glu Glu Leu Arg Lys His Gln	
ctg ccc cca gga acc ctg ctc aac gtc aac gtg ccc gac ggg gtg ccc	528
Leu Pro Pro Gly Thr Leu Leu Asn Val Asn Val Pro Asp Gly Val Pro	
cgc ggg gtc aag gtg acc aaa ctg gga agc gta cgc tac gtc aac gtg	576
Arg Gly Val Lys Val Thr Lys Leu Gly Ser Val Arg Tyr Val Asn Val	
gta gac tgc cgc acc gac cct cgg ggg aag gct tac tac tgg atg gcg	624
Val Asp Cys Arg Thr Asp Pro Arg Gly Lys Ala Tyr Tyr Trp Met Ala	
gga gaa cca ttg gag ctg gac ggc aac gac tcc gaa acc gac gtc tgg	672
Gly Glu Pro Leu Glu Leu Asp Gly Asn Asp Ser Glu Thr Asp Val Trp	
gcg gtg cga gaa ggc tat att tcc gta aca ccg gtc cag atc gac ctt	720
Ala Val Arg Glu Gly Tyr Ile Ser Val Thr Pro Val Gln Ile Asp Leu	
act aac tac ggc ttc ctg gaa gaa ctc aaa aaa tgg cgt ttc aag gat	768
Thr Asn Tyr Gly Phe Leu Glu Glu Leu Lys Lys Trp Arg Phe Lys Asp	
atc ttt tct tct taa	783
Ile Phe Ser Ser *	



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FIGURE 2

*Methanococcus igneus* Ko15 Phosphatase (9A1A)  
Complete Gene Sequence

atg ttg gat ata ctg ctt gtt aat gat gat ggc att tat tca aat gga Met Leu Asp Ile Leu Leu Val Asn Asp Asp Gly Ile Tyr Ser Asn Gly	48
tta ata gct ttg aag gat gca tta ttg gaa aaa ttt aat gcg agg att Leu Ile Ala Leu Lys Asp Ala Leu Leu Glu Lys Phe Asn Ala Arg Ile	96
act att gta gcc cca aca aat cag cag agt ggt att ggt agg gca ata Thr Ile Val Ala Pro Thr Asn Gln Gln Ser Gly Ile Gly Arg Ala Ile	144
agt tta ttc gag ccg tta agg ata act aaa acc aaa tta gca gat ggt Ser Leu Phe Glu Pro Leu Arg Ile Thr Lys Thr Lys Leu Ala Asp Gly	192
tct tgg gga tat gca gtt tca gga acc cca aca gat tgc gtt ata ttg Ser Trp Gly Tyr Ala Val Ser Gly Thr Pro Thr Asp Cys Val Ile Leu	240
ggc att tat gag ata tta aag aag gta cct gat gta gtt ata tca gga Gly Ile Tyr Glu Ile Leu Lys Lys Val Pro Asp Val Val Ile Ser Gly	288
ata aac att gga gaa aac ctt ggg act gaa ata aca act tct gga acg Ile Asn Ile Gly Glu Asn Leu Gly Thr Glu Ile Thr Thr Ser Gly Thr	336
ttg ggg gct gcg ttt gaa ggg gcc cat cat ggg gct aag gca tta gca Leu Gly Ala Ala Phe Glu Gly Ala His His Gly Ala Lys Ala Leu Ala	384
tca tca ctc caa gtt acc tct gac cat cta aag ttt aaa gag ggg gag Ser Ser Leu Gln Val Thr Ser Asp His Leu Lys Phe Lys Glu Gly Glu	432
acc cca ata gac ttc aca gtc cca gca aga att act gca aat gtt gtt Thr Pro Ile Asp Phe Thr Val Pro Ala Arg Ile Thr Ala Asn Val Val	480
gag aag atg ttg gat tat gat ttc cca tgt gat gtc gtc aac tta aac Glu Lys Met Leu Asp Tyr Asp Phe Pro Cys Asp Val Val Asn Leu Asn	528
att cca gaa gga gca aca gaa aag aca ccg att gaa atc aca agg ttg Ile Pro Glu Gly Ala Thr Glu Lys Thr Pro Ile Glu Ile Thr Arg Leu	576
gca agg aaa atg tat aca aca cac gtt gag gaa aga ata gat cca aga Ala Arg Lys Met Tyr Thr Thr His Val Glu Glu Arg Ile Asp Pro Arg	624
ggg agg agt tat tat tgg att gat ggg tat cct att tta gag gaa gag Gly Arg Ser Tyr Tyr Trp Ile Asp Gly Tyr Pro Ile Leu Glu Glu Glu	672
gaa gac act gat gtc tat gtt gtt aga aga aag gga cat att tct cta Glu Asp Thr Asp Val Tyr Val Val Arg Arg Lys Gly His Ile Ser Leu	720
acc cca tta aca tta gac aca aca att aaa aat tta gag gaa ttt aag Thr Pro Leu Thr Leu Asp Thr Thr Ile Lys Asn Leu Glu Glu Phe Lys	768
aaa aaa tat gag aga ata tta aat gaa tga Lys Lys Tyr Glu Arg Ile Leu Asn Glu *	798



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FIGURE 3

*Thermococcus alkaliphilus* AEDIII2RA Phosphatase (18A)  
Complete Gene Sequence

atg atg atg gaa ttc act cgc gag gga ata aaa gct gct gta gag gca Met Met Met Glu Phe Thr Arg Glu Gly Ile Lys Ala Ala Val Glu Ala	48
ctt caa ggg tta gga gag atc tac gta gtt gcc cca atg ttt caa agg Leu Gln Gly Leu Gly Glu Ile Tyr Val Val Ala Pro Met Phe Gln Arg	96
agc gca agt gga agg gca atg acc atc cac aga cct cta agg gct aaa Ser Ala Ser Gly Arg Ala Met Thr Ile His Arg Pro Leu Arg Ala Lys	144
aga ata agt atg aac ggt gca aaa gca gcc tat gct ttg gat gga atg Arg Ile Ser Met Asn Gly Ala Lys Ala Ala Tyr Ala Leu Asp Gly Met	192
ccc gtt gat tgc gtt atc ttt gcc atg gcc aga ttt gga gat ttc gac Pro Val Asp Cys Val Ile Phe Ala Met Ala Arg Phe Gly Asp Phe Asp	240
ctt gca ata agt ggt gta aac ttg gga gaa aac atg agc acc gag ata Leu Ala Ile Ser Gly Val Asn Leu Gly Glu Asn Met Ser Thr Glu Ile	288
acg gtt tcc ggg act gca agc gct gca ata gag gct gca acc caa gag Thr Val Ser Gly Thr Ala Ser Ala Ala Ile Glu Ala Ala Thr Gln Glu	336
atc cca agc att ccc ata agc ctg gaa gtt aat aga gaa aaa cac aaa Ile Pro Ser Ile Pro Ile Ser Leu Glu Val Asn Arg Glu Lys His Lys	384
ttt ggt gag ggc gaa gag att gac ttc tca gct gcc aag tat ttc cta Phe Gly Glu Gly Glu Glu Ile Asp Phe Ser Ala Ala Lys Tyr Phe Leu	432
aga aaa atc gca acg gcg gtt tta aag aga ggc ctc ccc aaa gga gtc Arg Lys Ile Ala Thr Ala Val Leu Lys Arg Gly Leu Pro Lys Gly Val	480
gat atg ctg aac gtc aac gtc cct tat gat gca aat gaa agg aca gag Asp Met Leu Asn Val Asn Val Pro Tyr Asp Ala Asn Glu Arg Thr Glu	528
ata gct ttt act cgc ctg gca aga agg atg tat agg cct tct att gaa Ile Ala Phe Thr Arg Leu Ala Arg Arg Met Tyr Arg Pro Ser Ile Glu	576
gag cgc ata gac cca aag ggg aat ccc tac tac tgg ata gtt gga act Glu Arg Ile Asp Pro Lys Gly Asn Pro Tyr Tyr Trp Ile Val Gly Thr	624
cag tgc cct aag gag gca tta gag ccg gga acg gat atg tat gta gtt Gln Cys Pro Lys Glu Ala Leu Glu Pro Gly Thr Asp Met Tyr Val Val	672
aaa gtt gag aga aaa gtt agc gtg act cca ata aac att gat atg aca Lys Val Glu Arg Lys Val Ser Val Thr Pro Ile Asn Ile Asp Met Thr	720
gca aga gtg aat tta gac gag att aaa aga ctt tta gaa ctg tag Ala Arg Val Asn Leu Asp Glu Ile Lys Arg Leu Leu Glu Leu *	765

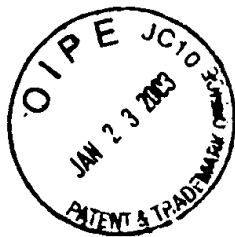


FIGURE 4

*Thermococcus celer* Phosphatase (25A1A)  
Complete Gene Sequence

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atg aga acc ctg aca ata aac act gac gcg gag ggg ttc gtt ttg agg	48
Met Arg Thr Leu Thr Ile Asn Thr Asp Ala Glu Gly Phe Val Leu Arg	
att ctc ctg acg aac gac gat gga atc tac tcc aac gga ctg cgc gcc	96
Ile Leu Leu Thr Asn Asp Asp Gly Ile Tyr Ser Asn Gly Leu Arg Ala	
gct gtg aaa gcc ctg agt gag ctc ggc gaa gtt tac gtc gtt gcc ccc	144
Ala Val Lys Ala Leu Ser Glu Leu Gly Glu Val Tyr Val Val Ala Pro	
ctc ttc cag agg agc gcg agc ggc agg gcc atg acg ctc cac agg ccg	192
Leu Phe Gln Arg Ser Ala Ser Gly Arg Ala Met Thr Leu His Arg Pro	
ata agg gcc aag cgc gtt gac gtt ccc ggc gca aag ata gcc tac gga	240
Ile Arg Ala Lys Arg Val Asp Val Pro Gly Ala Lys Ile Ala Tyr Gly	
ata gat gga act cct act gac tgc gtg att ttc gcc ata gcc cgc ttc	288
Ile Asp Gly Thr Pro Thr Asp Cys Val Ile Phe Ala Ile Ala Arg Phe	
ggg agc ttt ggt tta gcc gtg agc ggg att aac ctc ggc gag aac ctg	336
Gly Ser Phe Gly Leu Ala Val Ser Gly Ile Asn Leu Gly Glu Asn Leu	
agc acc gag ata aca gtc tca ggg acg gcc tcc gct gcc ata gag gcc	384
Ser Thr Glu Ile Thr Val Ser Gly Thr Ala Ser Ala Ala Ile Glu Ala	
tca act cat gga att ccg agc ata gcg att agc ctt gag gtg gag tgg	432
Ser Thr His Gly Ile Pro Ser Ile Ala Ile Ser Leu Glu Val Glu Trp	
aag aag acc ctc ggc gag ggt gag ggg gtt gac ttc tcg gtc tcg act	480
Lys Lys Thr Leu Gly Glu Gly Glu Gly Val Asp Phe Ser Val Ser Thr	
cac ttc ctc aag aga atc gcg gga gcc ctc ttg gag aga ggt ctt cct	528
His Phe Leu Lys Arg Ile Ala Gly Ala Leu Leu Glu Arg Gly Leu Pro	
gag ggc gtt gac atg ctc aac gtc aac gtt ccg agc gac gcg acg gag	576
Glu Gly Val Asp Met Leu Asn Val Asn Val Pro Ser Asp Ala Thr Glu	
gaa acg gag ata gca atc acc cgc tta gcc cgg aag cgc tac tcc cca	624
Glu Thr Glu Ile Ala Ile Thr Arg Leu Ala Arg Lys Arg Tyr Ser Pro	
acg gtc gag gag agg att gac ccc aag ggc aac ccc tac tac tgg att	672
Thr Val Glu Glu Arg Ile Asp Pro Lys Gly Asn Pro Tyr Tyr Trp Ile	
gtc ggc aaa ctt gtc caa gac ttc gag cca ggg aca gat gcc tac gcc	720
Val Gly Lys Leu Val Gln Asp Phe Glu Pro Gly Thr Asp Ala Tyr Ala	
ctg aag gtc gag agg aag gtc agc gtc acg ccg ata aac ata gat atg	768
Leu Lys Val Glu Arg Lys Val Ser Val Thr Pro Ile Asn Ile Asp Met	
act gcg agg gtg gac ttt gag gag ctt gta agg gtt ctg tgg gtg taa	816
Thr Ala Arg Val Asp Phe Glu Glu Leu Val Arg Val Leu Trp Val *	



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FIGURE 5A

*Thermococcus* GU5L5 Phosphatase (26A1A)  
Complete Gene Sequence

atg aaa gga aag tct ctt gtt agc ggt ctg ttg ttg ggt ctt tta att	48
Met Lys Gly Lys Ser Leu Val Ser Gly Leu Leu Leu Gly Leu Leu Ile	
ttg agc ctg att tca ttc cag cca agc ttt gca tac tcc cca cac ggc	96
Leu Ser Leu Ile Ser Phe Gln Pro Ser Phe Ala Tyr Ser Pro His Gly	
ggt gtc aaa aac atc ata atc ctg gtt gga gac ggc atg ggt ctt ggg	144
Gly Val Lys Asn Ile Ile Ile Leu Val Gly Asp Gly Met Gly Leu Gly	
cat gta gaa att aca aag ctc gtt tat gga cac tta aac atg gaa aac	192
His Val Glu Ile Thr Lys Leu Val Tyr Gly His Leu Asn Met Glu Asn	
ttt cca gtt act gga ttt gag ctt act gat tcc cta agt ggt gaa gtt	240
Phe Pro Val Thr Gly Phe Glu Leu Thr Asp Ser Leu Ser Gly Glu Val	
aca gat tct gct gcg gca gga act gca ata tcc act gga gct aaa acg	288
Thr Asp Ser Ala Ala Ala Gly Thr Ala Ile Ser Thr Gly Ala Lys Thr	
tat aat ggt atg att tca gta acc aac ata acc gga aag ata gtt aac	336
Tyr Asn Gly Met Ile Ser Val Thr Asn Ile Thr Gly Lys Ile Val Asn	
tta aca acc cta ctt gaa gtg gct caa gag ctt ggg aag tca aca ggg	384
Leu Thr Thr Leu Leu Glu Val Ala Gln Glu Leu Gly Lys Ser Thr Gly	
ctg gtc acc aca aca agg att acc cat gca act cca gca gtt ttt gcg	432
Leu Val Thr Thr Thr Arg Ile Thr His Ala Thr Pro Ala Val Phe Ala	
tcc cat gtc cca gat agg gat atg gag ggg gag ata ccc aag caa ctc	480
Ser His Val Pro Asp Arg Asp Met Glu Gly Glu Ile Pro Lys Gln Leu	
ata atg cac aaa gtt aac gtc ttg ttg ggt ggt gga agg gag aaa ttc	528
Ile Met His Lys Val Asn Val Leu Leu Gly Gly Gly Arg Glu Lys Phe	
gat gag aaa aat ttg gag ctg gcc aaa aag cag gga tac aaa gta gtt	576
Asp Glu Lys Asn Leu Glu Leu Ala Lys Lys Gln Gly Tyr Lys Val Val	
ttc acg aag gaa gag ctt gaa aaa gtt gaa gga gat tat gtc cta gga	624
Phe Thr Lys Glu Glu Leu Glu Lys Val Glu Gly Asp Tyr Val Leu Gly	
ctc ttt gca gaa agt cac atc cct tac gta ttg gat aga aaa ccc gat	672
Leu Phe Ala Glu Ser His Ile Pro Tyr Val Leu Asp Arg Lys Pro Asp	
gat gtt gga ctt tta gaa atg gcc aaa aag gca att tca ata ctc gag	720
Asp Val Gly Leu Leu Glu Met Ala Lys Lys Ala Ile Ser Ile Leu Glu	
aag aac ccg agc gga ttc ttt ctc atg gtt gag ggc gga agg att gac	768
Lys Asn Pro Ser Gly Phe Phe Leu Met Val Glu Gly Gly Arg Ile Asp	
cat gca gcc cat gga aac gat gtc gca tcg gtt gtt gca gaa act aag	816
His Ala Ala His Gly Asn Asp Val Ala Ser Val Val Ala Glu Thr Lys	
gag ttt gac gat gtt gtc aga tac gtg ctg gaa tat ccg aag aag agg	864
Glu Phe Asp Asp Val Val Arg Tyr Val Leu Glu Tyr Pro Lys Lys Arg	
gga gat acc ttg gta ata gtg ctt gcc gat cac gaa act gga ggt ctt	912
Gly Asp Thr Leu Val Ile Val Leu Ala Asp His Glu Thr Gly Gly Leu	



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FIGURE 5B

gca ata ggt cta acg tat gga aat gca atc gat gaa gat gcc ata aga	960
Ala Ile Gly Leu Thr Tyr Gly Asn Ala Ile Asp Glu Asp Ala Ile Arg	
aaa ata aaa gca agc acg ttg agg atg ccc aaa gag gtt aag gca ggg	1008
Lys Ile Lys Ala Ser Thr Leu Arg Met Pro Lys Glu Val Lys Ala Gly	
agt agt gta aaa gag tcc tca aag gta tgc cgg att tgt ccc aac aga	1056
Ser Ser Val Lys Glu Ser Ser Lys Val Cys Arg Ile Cys Pro Asn Arg	
gga aga agt cag tat att gag aat gcg ctg cac tcg aca aac aag tat	1104
Gly Arg Ser Gln Tyr Ile Glu Asn Ala Leu His Ser Thr Asn Lys Tyr	
gcc ctc tca aat gca gta gcc gat gtt ata aac agg cgt att ggt gtt	1152
Ala Leu Ser Asn Ala Val Ala Asp Val Ile Asn Arg Arg Ile Gly Val	
gga ttc acc tcc tat gag cat aca gga gtt cca gtt ccg ctc tta gct	1200
Gly Phe Thr Ser Tyr Glu His Thr Gly Val Pro Val Pro Leu Leu Ala	
tac ggt ccc ggg gca gag aac ttc aga ggt ttc tta cac cat gtg gat	1248
Tyr Gly Pro Gly Ala Glu Asn Phe Arg Gly Phe Leu His His Val Asp	
aca gca aga tta gtt gca aag tta atg ctc ttt gga agg agg aat att	1296
Thr Ala Arg Leu Val Ala Lys Leu Met Leu Phe Gly Arg Arg Asn Ile	
cca gtt acc att tca agc gtg agc agt gtt aag gga gac ata acc ggt	1344
Pro Val Thr Ile Ser Ser Val Ser Ser Val Lys Gly Asp Ile Thr Gly	
gat tac agg gtt gat gag aag gat gcc tac gtt acg ctc atg atg ttt	1392
Asp Tyr Arg Val Asp Glu Lys Asp Ala Tyr Val Thr Leu Met Met Phe	
ctc gga gaa aaa gtg gat aat gaa att gaa aag aga gtc gat ata gac	1440
Leu Gly Glu Lys Val Asp Asn Glu Ile Glu Lys Arg Val Asp Ile Asp	
aac aac ggc atg gtt gac tta aat gac gtc atg ttg att ctc cag gaa	1488
Asn Asn Gly Met Val Asp Leu Asn Asp Val Met Leu Ile Leu Gln Glu	
gct tga	1494
Ala *	

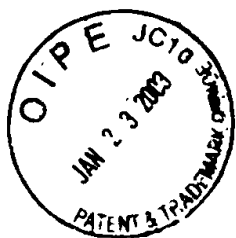


FIGURE 6A

OC9a Phosphatase (27A3A)  
Complete Gene Sequence**RECEIVED**  
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atg cca aga aat atc gcc gct gta tgc gcc ctg gcc gct ttg tta ggg Met Pro Arg Asn Ile Ala Ala Val Cys Ala Leu Ala Ala Leu Leu Gly	48
tcg gcc tgg gcg gcc aaa gtt gcc gtc tac ccc tac gac gga gcc gct Ser Ala Trp Ala Ala Lys Val Ala Val Tyr Pro Tyr Asp Gly Ala Ala	96
ttg ctg gcg ggg cag cgc ttc gat ttg cgc ata gaa gcc tcc gag ctg Leu Leu Ala Gly Gln Arg Phe Asp Leu Arg Ile Glu Ala Ser Glu Leu	144
aaa ggc aat tta aag gct tac cgc atc acc ctg gac ggc cag cct ctg Lys Gly Asn Leu Lys Ala Tyr Arg Ile Thr Leu Asp Gly Gln Pro Leu	192
gcg ggc ctc gag caa acc gcg cag ggg gcc ggg cag gcc gag tgg acc Ala Gly Leu Glu Gln Thr Ala Gln Gly Ala Gly Gln Ala Glu Trp Thr	240
ctg cgc ggt gcc ttc ctg cgc cct gga agc cac acc ctc gag gtc agc Leu Arg Gly Ala Phe Leu Arg Pro Gly Ser His Thr Leu Glu Val Ser	288
ctc acc gac gac gct ggg gag agc agg aag agc gta cgt tgg gag gct Leu Thr Asp Asp Ala Gly Glu Ser Arg Lys Ser Val Arg Trp Glu Ala	336
cgg cag aac ctt cgc ttg ccc cga gcg gcc aag aat gtg att ctc ttc Arg Gln Asn Leu Arg Leu Pro Arg Ala Ala Lys Asn Val Ile Leu Phe	384
att ggc gac ggg atg ggc tgg aac acc ctc aac gcc gcc cgc atc atc Ile Gly Asp Gly Met Gly Trp Asn Thr Leu Asn Ala Ala Arg Ile Ile	432
gcc aaa ggc ttt aac ccc gaa aac ggt atg ccc aac gga aac ctc gag Ala Lys Gly Phe Asn Pro Glu Asn Gly Met Pro Asn Gly Asn Leu Glu	480
atc gag agt ggt tac ggt ggg atg gct acc gtc act acc ggc agc ttt Ile Glu Ser Gly Tyr Gly Gly Met Ala Thr Val Thr Thr Gly Ser Phe	528
gat agc ttc atc gcc gac tca gct aac tcg gct tct tcc atc atg acc Asp Ser Phe Ile Ala Asp Ser Ala Asn Ser Ala Ser Ser Ile Met Thr	576
ggg cag aag gtg cag gtg aat gcc ctc aac gtt tac cca tca aac ctc Gly Gln Lys Val Gln Val Asn Ala Leu Asn Val Tyr Pro Ser Asn Leu	624
aaa gat acc ctg gcc tac ccc cgg atc gaa acc cta gcg gag atg ctc Lys Asp Thr Leu Ala Tyr Pro Arg Ile Glu Thr Leu Ala Glu Met Leu	672
aag cgg gta cgc ggg gcc agc att ggg gta gtg acc acc acc ttc ggc Lys Arg Val Arg Gly Ala Ser Ile Gly Val Val Thr Thr Thr Phe Gly	720
acc gac gct acc ccg gct tca ctc aac gcc cat acc cgc cgc cgc ggt Thr Asp Ala Thr Pro Ala Ser Leu Asn Ala His Thr Arg Arg Arg Gly	768
gat tac cag gct atc gcc gac atg tac ttt ggt aga ggc ggg ttc ggt Asp Tyr Gln Ala Ile Ala Asp Met Tyr Phe Gly Arg Gly Gly Phe Gly	816
gtt ccc ttg gat gtg atg ctc ttc ggt ggt tca cgc gac ttc atc ccc Val Pro Leu Asp Val Met Leu Phe Gly Gly Ser Arg Asp Phe Ile Pro	864

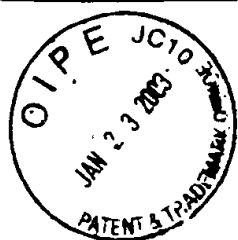


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Figure 6B

cag agc acc cct ggc tcg cgg cgc aag gat agc acg gac tgg att gcc	912
Gln Ser Thr Pro Gly Ser Arg Arg Lys Asp Ser Thr Asp Trp Ile Ala	
gaa tcc cag aag ctg ggc tac acc ttt gtc agc acc cgc agc gag ctg	960
Glu Ser Gln Lys Leu Gly Tyr Thr Phe Val Ser Thr Arg Ser Glu Leu	
ctg gcg gcc aaa ccc acc gat aag ctg ttt ggg ctg ttc aac att gac	1008
Leu Ala Ala Lys Pro Thr Asp Lys Leu Phe Gly Leu Phe Asn Ile Asp	
aac ttc ccc agc tac cta gac cgc gca gtg tgg aag cgg ccc gag atg	1056
Asn Phe Pro Ser Tyr Leu Asp Arg Ala Val Trp Lys Arg Pro Glu Met	
ctg gga agc ttt acc gat atg ccc tac ctc tgg gag atg acc cag aaa	1104
Leu Gly Ser Phe Thr Asp Met Pro Tyr Leu Trp Glu Met Thr Gln Lys	
gcc gtg gag gct ctc tcc aga aac gac aaa ggc ttt ttc ttg atg gtt	1152
Ala Val Glu Ala Leu Ser Arg Asn Asp Lys Gly Phe Phe Leu Met Val	
gag ggg gga atg gtg gat aag tac gag cac ccc ttg gac tgg ccc cgc	1200
Glu Gly Gly Met Val Asp Lys Tyr Glu His Pro Leu Asp Trp Pro Arg	
gca ctt tgg gat gta ctc gag ctg gac cgc gcg gtg gct tgg gcc aag	1248
Ala Leu Trp Asp Val Leu Glu Leu Asp Arg Ala Val Ala Trp Ala Lys	
ggc tat gcg gcc tcc cac ccc gat acc ctg gtg att gtc acc gcc gac	1296
Gly Tyr Ala Ala Ser His Pro Asp Thr Leu Val Ile Val Thr Ala Asp	
cac gct cac tcg atc tcg gtg ttt ggc ggt tac gac tac tcc aag cag	1344
His Ala His Ser Ile Ser Val Phe Gly Gly Tyr Asp Tyr Ser Lys Gln	
ggc cgg gag ggg gtg ggg gtt tat gag gcc gcc aag ttc ccc acc tac	1392
Gly Arg Glu Gly Val Gly Val Tyr Glu Ala Ala Lys Phe Pro Thr Tyr	
ggc gac aaa aaa gac gcc aac ggc ttt ccc ttg ccc gac acc act cgg	1440
Gly Asp Lys Lys Asp Ala Asn Gly Phe Pro Leu Pro Asp Thr Thr Arg	
gga atc gcg gta ggc ttc ggg gcc acg ccg gat tac tgt gaa acc tac	1488
Gly Ile Ala Val Gly Phe Gly Ala Thr Pro Asp Tyr Cys Glu Thr Tyr	
cgg ggc cgc gag gtc tac aaa gac ccc acc atc tcc gac ggc aaa ggt	1536
Arg Gly Arg Glu Val Tyr Lys Asp Pro Thr Ile Ser Asp Gly Lys Gly	
ggt tac gtg gcc aac cct gag gtc tgc aag gag ccg ggc ctt cca acg	1584
Gly Tyr Val Ala Asn Pro Glu Val Cys Lys Glu Pro Gly Leu Pro Thr	
tac cgg caa ctc cca gta gat agc gcc cag ggc gtg cac acg gct gat	1632
Tyr Arg Gln Leu Pro Val Asp Ser Ala Gln Gly Val His Thr Ala Asp	
ccc atg ccg ctg ttt gcc ttt ggc gtg ggg tct cag ttc ttc aat gcc	1680
Pro Met Pro Leu Phe Ala Phe Gly Val Gly Ser Gln Phe Phe Asn Gly	
ctc atc gac cag acc gag atc ttc ttc cgc atg gcc cag gcc cta ggg	1728
Leu Ile Asp Gln Thr Glu Ile Phe Phe Arg Met Ala Gln Ala Leu Gly	
ttc aac ccc cac ctc gag aag cct taa	1755
Phe Asn Pro His Leu Glu Lys Pro *	



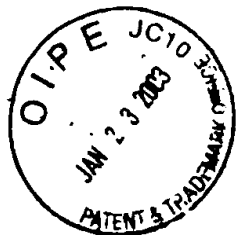


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FIGURE 7

M11 TL Phosphatase (29A1A=29A2A)  
Complete Gene Sequence

atg tat aaa tgg att att gag ggt aag ctt gcc caa gca cct ttt cca	48
Met Tyr Lys Trp Ile Ile Glu Gly Lys Leu Ala Gln Ala Pro Phe Pro	
agc cta ggt gaa cta gcc gat ctc aaa aga ctt ttc gac gcc att att	96
Ser Leu Gly Glu Leu Ala Asp Leu Lys Arg Leu Phe Asp Ala Ile Ile	
gtt ctt aca atg ccg cat gaa caa ccg ctt aat gag aaa tat atc gag	144
Val Leu Thr Met Pro His Glu Gln Pro Leu Asn Glu Lys Tyr Ile Glu	
ata tta gag agc cat gga ttc caa gtc ctc cat gtc ccc acg ctc gac	192
Ile Leu Glu Ser His Gly Phe Gln Val Leu His Val Pro Thr Leu Asp	
ttt cat cct tta gaa ctc ttc gac ctt ttg aaa aca agc ata ttc att	240
Phe His Pro Leu Glu Leu Phe Asp Leu Leu Lys Thr Ser Ile Phe Ile	
gat gaa aac ctg gag aga tcc cac aga gtg ctt gtc cac tgc atg gga	288
Asp Glu Asn Leu Glu Arg Ser His Arg Val Leu Val His Cys Met Gly	
ggc ata ggc cgg agc ggg ctt gta act gct gcg tac tta ata ttc aaa	336
Gly Ile Gly Arg Ser Gly Leu Val Thr Ala Ala Tyr Leu Ile Phe Lys	
ggg tat gat att tac gac gcg gta aag cat gtg aga acg gta gtg cct	384
Gly Tyr Asp Ile Tyr Asp Ala Val Lys His Val Arg Thr Val Val Pro	
ggg gct att gaa aac aga ggg caa gcg tta atg ctt gag aac tac tat	432
Gly Ala Ile Glu Asn Arg Gly Gln Ala Leu Met Leu Glu Asn Tyr Tyr	
acc ctg gtc aaa agt ttc aac aga gag ttg ctg aga gac tac ggg aag	480
Thr Leu Val Lys Ser Phe Asn Arg Glu Leu Leu Arg Asp Tyr Gly Lys	
aaa att ttc acg ctc ggt gac ccg aag gcg gtt ctc cac gct tct aag	528
Lys Ile Phe Thr Leu Gly Asp Pro Lys Ala Val Leu His Ala Ser Lys	
acg act cag ttc acg att gaa ctc tta agc aac tta cac gtc aac gag	576
Thr Thr Gln Phe Thr Ile Glu Leu Leu Ser Asn Leu His Val Asn Glu	
gcg ttt tca atc agt gcg atg gct caa tca ctg ctc cac ttt cac gac	624
Ala Phe Ser Ile Ser Ala Met Ala Gln Ser Leu Leu His Phe His Asp	
gta aaa gtc cgc tct aaa ctg aaa gaa gta ttc gaa aac atg gaa ttc	672
Val Lys Val Arg Ser Lys Leu Lys Glu Val Phe Glu Asn Met Glu Phe	
tca tcc gcc tca gag gag gtt ctg tca ttt att cac cta ctc gat ttc	720
Ser Ser Ala Ser Glu Glu Val Leu Ser Phe Ile His Leu Leu Asp Phe	
tat cag gat ggc agg gtt gtt tta acc att tac gat tat ctc ccc gat	768
Tyr Gln Asp Gly Arg Val Val Leu Thr Ile Tyr Asp Tyr Leu Pro Asp	
agg gtg gat ttg att tta ttg tgt aag tgg ggt tgt gat aaa ata gtt	816
Arg Val Asp Leu Ile Leu Leu Cys Lys Trp Gly Cys Asp Lys Ile Val	
gaa gtc tcg tct tca gcg aag aaa acc gtt gag aag ctt gta gga aga	864
Glu Val Ser Ser Ser Ala Lys Lys Thr Val Glu Lys Leu Val Gly Arg	
aag gtt tcc cta tcc tgg gct aat tac tta gac tat gtt tag	906
Lys Val Ser Leu Ser Trp Ala Asn Tyr Leu Asp Tyr Val *	



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FIGURE 8

*Thermococcus* CL-2 Phosphatase (30A1A)  
Complete Gene Sequence

atg aga atc ctc ctc acc aac gac gac ggc atc tat tcc aac ggt ctg Met Arg Ile Leu Leu Thr Asn Asp Asp Gly Ile Tyr Ser Asn Gly Leu	48
cgc gcg gcg gtg aag ggc ctg agc gag ctc ggc gag gtc tac gtc gtc Arg Ala Ala Val Lys Gly Leu Ser Glu Leu Gly Glu Val Tyr Val Val	96
gcc ccg ctc ttc cag agg agc gcg agc ggt cgg gcg atg acc cta cac Ala Pro Leu Phe Gln Arg Ser Ala Ser Gly Arg Ala Met Thr Leu His	144
agg ccg ata agg gca aag agg gtt gac gtt ccc ggc gcg aag ata gcg Arg Pro Ile Arg Ala Lys Arg Val Asp Val Pro Gly Ala Lys Ile Ala	192
tat ggc ata gac gga acg ccg acc gac tgc gtg att ttt gcc atc gcc Tyr Gly Ile Asp Gly Thr Pro Thr Asp Cys Val Ile Phe Ala Ile Ala	240
cgc ttc ggc gac ttt gat ctg gcg gtc agc ggg ata aac cta ggc gag Arg Phe Gly Asp Phe Asp Leu Ala Val Ser Gly Ile Asn Leu Gly Glu	288
aac ctg agc acg gag ata acc gtc tcc gga acg gcc tcg gcg gcg ata Asn Leu Ser Thr Glu Ile Thr Val Ser Gly Thr Ala Ser Ala Ala Ile	336
gag gct tcc acc cac ggg att cca agt gta gct ata agc ctc gag gtc Glu Ala Ser Thr His Gly Ile Pro Ser Val Ala Ile Ser Leu Glu Val	384
gag tgg aag aag acc ctc ggc gag ggg gag ggt att gac ttc tcg gtt Glu Trp Lys Lys Thr Leu Gly Glu Gly Glu Gly Ile Asp Phe Ser Val	432
tca gca cac ttc ctg aga agg ata gcg acg gct gtc ctt aag aag ggc Ser Ala His Phe Leu Arg Arg Ile Ala Thr Ala Val Leu Lys Lys Gly	480
ctg cct gaa ggg gtg gac atg ctc aac gtg aac gtc cct agc gac gcc Leu Pro Glu Gly Val Asp Met Leu Asn Val Asn Val Pro Ser Asp Ala	528
agc gag ggg act gag atc gcc ata acg cgc ctc gcg agg aag cgc tat Ser Glu Gly Thr Glu Ile Ala Ile Thr Arg Leu Ala Arg Lys Arg Tyr	576
tct ccg acg ata gag gag agg ata gac ccc aag ggc aac ccc tac tac Ser Pro Thr Ile Glu Glu Arg Ile Asp Pro Lys Gly Asn Pro Tyr Tyr	624
tgg atc gtt ggc agg ctc gtc cag gag ttc gag ccg ggc acg gac gcc Trp Ile Val Gly Arg Leu Val Gln Glu Phe Glu Pro Gly Thr Asp Ala	672
tac gct ctg aaa gtc gag aga aag gtc agc gtc acg ccc ata aac atc Tyr Ala Leu Lys Val Glu Arg Lys Val Ser Val Thr Pro Ile Asn Ile	720
gac atg act gcg agg gtt gac ttt gag aac ctt caa agg ctt ctg agc Asp Met Thr Ala Arg Val Asp Phe Glu Asn Leu Gln Arg Leu Leu Ser	768
ctg tga Leu *	774



FIGURE 9

*Aquifex* VF-5 Phosphatase (34A1A)  
Complete Gene Sequence

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atg gaa aac tta aaa aag tac cta gaa gtt gca aaa ata gcc gcg ctc Met Glu Asn Leu Lys Lys Tyr Leu Glu Val Ala Lys Ile Ala Ala Leu	48
gcg ggt ggg cag gtt ctg aaa gaa aac ttc gga aag gta aaa aag gaa Ala Gly Gly Gln Val Leu Lys Glu Asn Phe Gly Lys Val Lys Lys Glu	96
aac ata gag gaa aaa ggg gaa aag gac ttt gta agt tac gtg gat aaa Asn Ile Glu Glu Lys Gly Glu Lys Asp Phe Val Ser Tyr Val Asp Lys	144
act tca gag gaa agg ata aag gag gtg ata ctc aag ttc ttt ccc gat Thr Ser Glu Glu Arg Ile Lys Glu Val Ile Leu Lys Phe Phe Pro Asp	192
cac gag gtc gta ggg gaa gag atg ggt gcg gag gga agc gga agc gaa His Glu Val Val Gly Glu Glu Met Gly Ala Glu Gly Ser Gly Ser Glu	240
tac agg tgg ttc ata gac ccc ctt gac ggc aca aag aac tac ata aac Tyr Arg Trp Phe Ile Asp Pro Leu Asp Gly Thr Lys Asn Tyr Ile Asn	288
ggt ttt ccc atc ttt gcc gta tca gtg gga ctt gtt aag gga gaa gag Gly Phe Pro Ile Phe Ala Val Ser Val Gly Leu Val Lys Gly Glu Glu	336
cca att gtg ggt gcg gtt tac ctt cct tac ttt gac aag ctt tac tgg Pro Ile Val Gly Ala Val Tyr Leu Pro Tyr Phe Asp Lys Leu Tyr Trp	384
ggt gct aaa ggt ctc ggg gct tac gta aac gga aag agg ata aag gta Gly Ala Lys Gly Leu Gly Ala Tyr Val Asn Gly Lys Arg Ile Lys Val	432
aag gac aat gag agt tta aag cac gcc gga gtg gtt tac gga ttt ccc Lys Asp Asn Glu Ser Leu Lys His Ala Gly Val Val Tyr Gly Phe Pro	480
tct agg agc agg agg gac ata tct atc tac ttg aac ata ttc aag gat Ser Arg Ser Arg Arg Asp Ile Ser Ile Tyr Leu Asn Ile Phe Lys Asp	528
gtc ttt tac gaa gtt ggc tct atg agg aga ccc ggg gct gct gcg gtt Val Phe Tyr Glu Val Gly Ser Met Arg Arg Pro Gly Ala Ala Ala Val	576
gac ctc tgc atg gtg gcg gaa ggg ata ttt gac ggg atg atg gag ttt Asp Leu Cys Met Val Ala Glu Gly Ile Phe Asp Gly Met Met Glu Phe	624
gaa atg aag ccg tgg gac ata acc gca ggg ctt gta ata ctg aag gaa Glu Met Lys Pro Trp Asp Ile Thr Ala Gly Leu Val Ile Leu Lys Glu	672
gcc ggg ggc gtt tac aca ctt gtg gga gaa ccc ttc gga gtt tcg gac Ala Gly Gly Val Tyr Thr Leu Val Gly Glu Pro Phe Gly Val Ser Asp	720
ata att gcg ggc aac aaa gcc ctc cac gac ttt ata ctt cag gta gcc Ile Ile Ala Gly Asn Lys Ala Leu His Asp Phe Ile Leu Gln Val Ala	768
aaa aag tat atg gaa gtg gcg gtg tga Lys Lys Tyr Met Glu Val Ala Val *	795